

We claim:

1. A dry powder inhaler comprising:
 - (a) a intake section; mechanically connected to
 - (b) a mixing section; mechanically connected to
 - (c) a mouthpiece;

wherein the intake section, and mouthpiece each have a longitudinal axis; and wherein air flows through a passage extending from the intake section through the mixing section through the mouthpiece; and wherein the mechanical connection between the mouthpiece and the mixing section comprises a swivel joint which allows the longitudinal axis of the intake section to be parallel to the longitudinal axis of the mouthpiece.

2. The dry powder inhaler of claim 1 further comprising a cover mechanically connected to the dry powder inhaler, wherein the cover shelters the mouthpiece.

3. The dry powder inhaler of claim 1 further comprising a cover mechanically connected to the dry powder inhaler, wherein the cover shelters the mixing section.

4. The dry powder inhaler of claim 4 wherein the mixing section cover only opens when the angle defined by the longitudinal axis of the intake section and the longitudinal axis of the mouthpiece and the swivel joint vertex is a fixed number of degrees.

5. The dry powder inhaler of claim 1, wherein the fixed number of degrees the angle must be for the cover to be opened is between approximately ninety degrees and one hundred and eighty degrees.

6. The dry powder inhaler of claim 3 wherein the mixing section cover is translucent and is a magnifying lens.

7. The dry powder inhaler of claim 1 further comprising a storage section mechanically connected to the dry powder inhaler, wherein a cover mechanically connected to the storage section shelters the storage section, and the cover may assume one or more fixed open positions.

8. The dry powder inhaler of claim 7 wherein the storage section cover is translucent and is a magnifying lens.

9. The dry powder inhaler of claim 7 wherein the storage section further includes mechanical fasteners mechanically connected to the storage section to secure capsules within the storage section.

10. The dry powder inhaler of claim 2 wherein the mouthpiece cover is mechanically connected to the dry powder inhaler by means of protrusions on the mouthpiece cover, and wherein the dry powder inhaler further includes corresponding depressions that mate with said protrusions.

11. The dry powder inhaler of claim 1 wherein the intake section includes an inner channel and comprises:

- (a) an intake port; covered by
- (b) a flow regulator; and
- (c) a bleed orifice;

wherein the intake port and the bleed orifice both admit air to the dry powder inhaler, the rate of admission of said air being controlled by both the flow regulator and the bleed orifice and wherein the flow regulator comprises:

(alpha) a piston comprising a piston head connected to a piston rod; and

(beta) one or more springs connected to the piston and the inner walls of the intake chamber; wherein the piston rod wider at the proximal portion connected to the piston head and narrower at the distal portion; and wherein the piston head covers the intake port; and wherein the piston head moves away from the intake port to admit air to the intake port, and wherein movement of the piston head is modulated by the springs connecting the piston to the inner walls of the intake chamber.

12. The dry powder inhaler of claim 11 wherein the intake chamber further includes a feedback module mechanically connected to the intake chamber, wherein the feedback module generates a signal in response to the flow of air in the intake chamber.

13. The dry powder inhaler of claim 12, wherein the feedback module comprises signal generators selected from the group consisting of electronic apparatuses to generate audio signals and mechanical devices to generate audio signals.

14. The dry powder inhaler of claim 12 wherein the strength of the signal from the feedback module may be varied by a user of the dry powder inhaler.

15. The dry powder inhaler of claim 1, wherein the mixing section is a chamber which comprises a holder for a capsule having top and bottom keying portions; and the holder is nested inside the chamber; wherein the holder mechanically grips the top and bottom keying portions of the capsule, and wherein the holder opens the capsule when the angle defined by the longitudinal axis of the intake section and the longitudinal axis of the mouthpiece and the swivel joint vertex is a fixed number of degrees, and closes the capsule when the angle defined by the longitudinal axis of the intake section and the longitudinal axis of the mouthpiece and the swivel joint vertex is a fixed number of degrees.

16. The dry powder inhaler of claim 1, wherein the fixed number of degrees needed to open the capsule is between approximately ninety degrees and one hundred and eighty degrees, and the fixed number of degrees to close the capsule is between approximately ninety and zero degrees.

17. The dry powder inhaler of claim 1, wherein the mixing section is a chamber which comprises a holder for a capsule having top and bottom keying portions; and the holder is nested inside the chamber; wherein the holder mechanically grips the top and bottom keying portions of the capsule, and the holder only admits one capsule with one type of keying portion.

18. The dry powder inhaler of claim 1, wherein the mixing chamber comprises a Venturi chamber that is shaped to give air passing through it a cyclonic flow.

19. The dry powder inhaler of claim 1, wherein the Venturi chamber is shaped so as to keep the air velocity below the inflection speed limit.

20. A dry powder inhaler comprising a mouthpiece sized to extend mid-way into the oral cavity of a user.
21. The dry powder inhaler of claim 20 wherein the mouthpiece further includes a tongue depressor.
22. The dry powder inhaler of claim 21 wherein the tongue depressor has a bulbous shape.
23. The dry powder inhaler of claim 1 wherein the mouthpiece has an outer surface further includes a protrusion on that outer surface to contact the lips of the user and so to indicate to the user that the dry powder inhaler has been inserted into the oral cavity of the user in the correct position.
24. The dry powder inhaler of claim 1 wherein the mouthpiece has an inner channel shaped to keep air flowing at the proper velocity of approach.
25. The dry powder inhaler of claim 2 wherein air is admitted to dry the mouthpiece when the cover is closed.
26. The dry powder inhaler of claim 1 wherein the mouthpiece opening has an approximately 3:1 horizontal aspect ratio.
27. The dry powder inhaler of claim 1 wherein the inhaler was designed using a pneumatic resistance circuit.
28. A capsule for holding a medicament comprising a first tube and a second tube, wherein:
- (a) a first tube having a long axis, having an inner and an outer surface radial to the long axis, wherein the tube is open at one end perpendicular to the long axis and closed at one end perpendicular to the long axis; and wherein the first tube has at least one protrusion on its outer surface; and
 - (b) a second tube having a long axis, having an inner and an outer surface radial to the long axis, wherein the tube is open at one end perpendicular to the long axis and closed at one end perpendicular to the long axis and wherein the second tube has at least one protrusion on its inner surface; and wherein the outer circumference of the first tube is approximately equal to

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the inner circumference of the second tube, such that the open end of the first tube can slide snugly into the open end of the second tube; and wherein a protrusion on the outer surface of the first tube may slide past a protrusion on the inner surface of the second tube, locking the tubes together;

and wherein the first tube and the second tube each have one or more secondary holes other than the openings at the end of each tube, wherein at least one secondary hole in the first tube may be made coincident with at least one secondary hole in the second tube when the first tube is slid onto the second tube in the unlocked position by rotation of the first and second tubes about their long axes, and

wherein when the first tube is locked onto the second tube at least two secondary holes in the first tube may be made coincident with at least two secondary holes in the second tube by rotation of the first and second tubes about their long axes.

29. The capsule of claim 28 wherein the first and second tubes further comprise keying surfaces at the closed ends of the tubes.

30. The capsule of claim 28 further including medicament selected from the group consisting of liquid, powder, and gaseous medicaments.

31. A medicament capsule comprising a fastening mechanism to attach it to a second medicament capsule.

32. The medicament capsule of claim 31 wherein the fastening mechanism can attach the capsule to a storage compartment for capsules in an inhaler.

33. A medicament capsule for an inhaler wherein the medicament capsule comprises apertures in the capsule to admit air flow and wherein structures in the interior surface of the capsule create cyclonic air flow.

34. The capsule of claim 33 wherein the structures are cone-shaped.

35. A medicament capsule for a dry particle inhaler having a hole to admit air flow to release medicament into the airstream of the dry particle inhaler wherein the vertical slot ratio of the hole is between 1:1 and 3:1.

36. The medicament capsule of claim 35, wherein the vertical slot ratio is 2:1.

37. A method of making a capsule comprising a powdered medicament comprising the steps of:

(a) introducing a liquid or gel containing medicament into the capsule of claim 28; and

(b) drying the medicament to form a powder.

38. A method of making a capsule comprising a medicament comprising the step of introducing one or more chemicals into the capsule of claim 28.

39. The dry particle inhaler of claim 1, wherein the inner channel of the intake section may be isolated from outside air while the inner channel of the mixing section and the mouthpiece is exposed to outside air.

40. The dry particle inhaler of claim 1, wherein the mixing section has a long axis, and wherein the air flowing through the mixing section to the mouthpiece exits the mixing section at a tangent to a circle described by a radius about the long axis of the mixing section.

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